

REMARKS:

Claims 1-19 and 21-23 are pending in the application; claims 1, 8, 18, and 22 are independent claims. Applicants thank the Examiner for indicating that claims 21 and 23 are allowed. Remaining claims 1-19 and 22 stand rejected. Applicants have amended claims 1 and 13 in response to objections due to informalities resulting from mistakenly deleted text in the previous amendment. Claim 14 is also amended herewith to conform with amended claim 13. Claim 22 is amended herewith to clarify the subject matter Applicants regard as their invention.

Claims 1-3 and 7 are rejected under 35 U.S.C. § 102(b) as being anticipated by newly cited U.S. 4,439,699 to Brende et al. ("Brende"). Claims 8-10 and 18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,157,100 to Mielke (hereinafter "Mielke"). Claim 22 is rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,734,209 to Hallidy (hereinafter "Hallidy").

Claims 4-6, which depend from claim 1, claims 11, 12, which depend from claim 8, and claim 19, which depends from claim 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Brende in view of U.S. Patent No. 3,149,255 to Trench ("Trench"). Claims 13 and 14, which depend from claim 1, are rejected under 35 U.S.C. 103(a) as being unpatentable over Brende in view of U.S. Patent No. 5,909,066 to Nanba et al. ("Nanba"). Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brende in view of Nanba and Trench.

Rejection of claims 1-3 and 7 under 35 U.S.C. §102(b)

Turning to the rejection of independent claims 1-3 and 7 as being anticipated by Brende, Brende relates to a linear motor 10 which includes a double-walled cylindrical annulus comprising magnetically permeable iron (*see* Figures 1 and 2), defined as an inner core 14 and an outer core 11. Enclosed between cores 11 and 14 is permanent magnet 18, which is retained against the inner wall of outer core 11 by retainer 29. Drive coil 35 is also enclosed between cores 11 and 14, and is axially movable in the air gap between retainer 29 and inner core 14. (*see* column 2, lines 1-33). Brende is silent about a first or second bearing surface layer.

The Examiner contends that the outer surface of the inner core 14 forms the second bearing surface layer, and that the second bearing layer is, therefore, presumably formed of magnetically permeable iron. The Examiner further contends that the outer surface of core 14 is in the form of a sleeve, as recited in Claim 1.

Applicants respectfully traverse this reasoning and the rejection of claim 1 and claims dependent therefrom in view of Brende. The outer surface 14 in Brende is located *inside* coil form 37. By definition, a sleeve fits *over* a generally tubular part, not under or inside a part. In addition, one skilled in the art would not choose magnetically permeable iron as a bearing layer. Accordingly, Applicants respectfully disagree that Brende, which is silent about bearing surfaces, discloses or teaches that the outer surface of core 14 is a bearing layer. At least for these reasons, claim 1 and claims dependent therefrom, including claims 2, 3 and 7 are patentable over Brende.

Rejection of claims 8-10 and 18 under 35 U.S.C. §102(b)

The Examiner also maintains the rejection of independent claim 8 and claims 9-10 dependent therefrom, and independent claim 18 as being anticipated by Mielke. Mielke discloses a linear drive motor 4 which includes permanent disc-shaped magnets 6 and soft-magnetic disks 7. Disks 7 are adhesively bonded to and of the same diameter as permanent magnets 6 (*see* column 2, lines 26-38, and Figure 2). A coil former 10 is mounted in an annular gap 9 between the inner surface of the casing 8 and the magnets in an "axially displaceable manner" (*see* column 2, lines 39-46). Mielke is silent about a bearing surface layer, in particular, a second bearing surface layer of which a portion thereof is magnetically saturated by a magnetic field of the second magnet (permanent magnet 6) as recited in claim 8, or anisotropic in its magnetic permeability as recited in claim 18.

The Examiner has apparently assumed that the surface of the coil former 10 provides the first bearing surface and the surface of the soft magnetic-disk 7 provides the second bearing surface layer, in view of the bearing surfaces shown in Figure 2 (65-68) of U.S. 5,734,209 to Hallidy ("Hallidy"). See final Office action, page 2, third paragraph of Item 1. In addition, the Examiner asserts that the surface of disk 7 has a magnetic permeability and is positioned to be

magnetically saturated by a magnetic field of the second magnet, and is anisotropic in its magnetic permeability.

Applicants respectfully disagree with the Examiner's reasoning that Mielke, combined with the teaching of Hallidy, anticipates claims 8 and 18. First, Applicants note that the claims can not be properly rejected under 35 U.S.C. 102, since references were combined to allegedly find all the elements of the claim. Accordingly, Applicants assume that the Examiner intended to reject the claims under 35 U.S.C. § 103 for obviousness, not under § 102 for anticipation.

It is well-established that to establish a prima facie case of obviousness, every element of the invention as claimed must be found in the prior art. See In re Rouffel, 149 F.3d 1350, 1357 (Fed. Cir. 1998) and M.P.E.P. §§ 2142, 2143. The burden is on the Examiner to demonstrate that each feature of a claim is met by a reference or valid combination of references. The courts have repeatedly and consistently held that "all limitations [of a claim] must be considered ... and it is error to ignore specific limitations in distinguishing over the references." See In re Boe and Duke, 184 USPQ 38, 40 (CCPA 1974). Moreover, to establish obviousness by modifying or combining references, there must be some suggestion or motivation to do so in the reference itself or in the knowledge generally available to one of ordinary skill in the art that lies outside the disclosure of the patent application. See, e.g., M.P.E.P. §2142. Absent this motivation, a rejection under 35 U.S.C. § 103(a) is improper.

The test for obviousness is not whether the features of a secondary reference can physically be incorporated into the structure of the primary reference. See MPEP § 2145, citing In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In fact, the combination, though physically possible, cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP §§ 2145 and 2143.01, e.g. Accordingly, if the proposed combination renders the invention of the primary reference being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. See MPEP § 2143.01, citing In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

In regard to the combination of the references, Applicants submit that every element of the invention as claimed can not be found in the cited prior art when combined as required under

35 U.S.C. 103(a). For example, neither Hallidy nor Mielke discloses or suggests a bearing layer surface that can be magnetically saturated or that has anisotropic permeability. Furthermore, Applicants disagree with the Examiner's reasoning that Hallidy teaches that the soft magnetic disk 7 of Mielke can provide the second bearing layer for the following reasons. Hallidy discloses a set of annular spaced bearings 65-68 that have a diameter greater than the adjacent permanent magnets 18 so that only bearings 65-68 contact a hardened epoxy surface 69 on the surface of the stator 32 and not the magnet 18 (*see* column 13, lines 7-12 and Figure 2). In contrast, Mielke discloses that the soft-magnetic disks 7 are of the same diameter as permanent magnets 6 (*see* column 2, lines 26-38). Accordingly, if, as the Examiner contends, the outer surface of magnet 7 of Mielke forms a bearing surface, then the surface of the permanent magnet 6 would also form part of the bearing surface. Hallidy does not teach a bearing layer surface that would include a surface of the permanent magnet nor would one skilled in the art use a surface of a permanent magnet as a bearing surface. In fact, modifying Mielke so that soft-magnetic disks 7 formed a bearing layer requires that the permanent magnet which is of the same diameter, would also form a bearing surface. Such modification would render the device unsatisfactory for its intended purpose. Accordingly, there is no motivation to modify Mielke or combine the references as suggested by the examiner. Furthermore, even if the references were combined, the device as claimed on claims 8 and 18 could not result, since neither Hallidy nor Mielke discloses or suggests a bearing layer surface that can be magnetically saturated or that has anisotropic permeability. At least for these reasons, independent claims 8 and 18 and claims dependent therefrom are patentable over the cited prior art.

Rejection of claim 22 under 35 U.S.C. §102(b)

Turning to claim 22, the Examiner has also maintained his rejection of this claim as being anticipated by Hallidy. In particular, the Examiner asserts that the claim as written allows the sleeve to fit over the entire *inner* circumferential surface of a cylindrical magnet, which, according to the Examiner, is disclosed in Hallidy. Applicants have amended claim 22 in a sincere effort to clarify that the sleeve is assembled *over* the stack of magnets to form a shaft. In light of the amendment, Applicants submit that independent claim 22 and claims dependent therefrom are also patentable over the cited prior art.

Rejection of claims 4-6, 11, 12, 13-17 and 19 under 35 U.S.C. §103(a)

Claims 4-6, which depend from claim 1 are rejected over Brende in view of Trench. Furthermore, claims 13 and 14, which depend from claim 1 are rejected over Brende in view of Nanba, and claims 15-17, which depend from claim 1 are rejected over Brende in view of Nanba and Trench. In light of the dependency of claims 4-6, and 13-17 from claim 1 and further in view of the afore-mentioned remarks regarding the patentability of claim 1 over Brende, Applicants submit that claims 4-6, and 13-17 are also patentable over the cited art.

Turning to the rejection of claims 11, 12 and 19, the Examiner asserts that Brende contains all of the limitations of the invention, and that Trench shows the shaft (24); the second bearing surface layer (18) being located over at least a portion of the shaft; and the second magnet (17) located within the shaft of claim 19, and that Mielke shows the saturated and unsaturated portions. Applicants respectfully disagree that Brende teaches all of the limitations of claims 11, 12 and 19.

As discussed above in reference to the rejection of claim 1 over Brende, Brende is silent about a first or second bearing surface layer being in moving contact as cited in claims 8 and 18 from which claims 11, 12 and 19 respectively depend. In particular, the Examiner contends that the outer surface of the inner core 14 forms the second bearing surface layer, and that the second bearing layer is, therefore, presumably formed of magnetically permeable iron. Applicants respectfully traverse this reasoning and the rejection of claims 8 and 18 and claims dependent therefrom in view of Brende. One skilled in the art would not choose magnetically permeable iron as a bearing layer.

Accordingly, Applicants respectfully disagree that Brende, which is silent about bearing surfaces, discloses or teaches that the outer surface of core 14 is a bearing layer. Furthermore, neither Trench nor Mielke cure the deficiencies of Brende in this regard. At least for these reasons, claims 11, 12 and 19 are also patentable over the cited prior art.

CONCLUSION

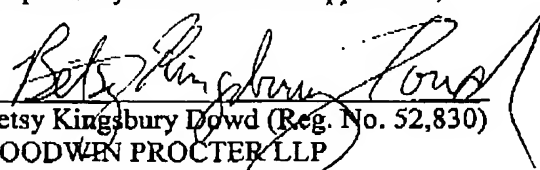
Applicants respectfully request entry of this amendment and reconsideration and allowance of the pending claims. In light of the foregoing, Applicants respectfully submit that all claims are now in condition for allowance.

Applicants believe that no fees are necessitated by the present Response. However, in the event that any fees are due, the Commissioner is hereby authorized to charge any such fees to Deposit Account No. 06-0923.

If the Examiner believes that a telephone conversation with Applicants' attorney would expedite allowance of this application, the Examiner is cordially invited to telephone the undersigned attorney at the number provided below.

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Respectfully submitted for Applicants,


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